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**DRAFT ECONOMIC ANALYSIS
OF CRITICAL HABITAT DESIGNATION
FOR THE LA GRACIOSA THISTLE,
LOMPOC YERBA SANTA, AND GAVIOTA TARPLANT**

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PREFACE

The U.S. Fish and Wildlife Service has added this preface to all economic analyses of critical habitat designations:

"The standard best practice in economic analysis is applying an approach that measures costs, benefits, and other impacts arising from a regulatory action against a baseline scenario of the world without the regulation. Guidelines on economic analysis, developed in accordance with the recommendations set forth in Executive Order 12866 ("Regulatory Planning and Review"), for both the Office of Management and Budget and the Department of the Interior, note the appropriateness of the approach:

'The baseline is the state of the world that would exist without the proposed action. All costs and benefits that are included in the analysis should be incremental with respect to this baseline.'

"When viewed in this way the economic impacts of critical habitat designation involve evaluating the 'without critical habitat' baseline versus the 'with critical habitat' scenario. Impacts of a designation equal the difference, or the increment, between these two scenarios. Measured differences between the baseline and the scenario in which critical habitat is designated may include (but are not limited to) changes in land use, environmental quality, property values, or time and effort expended on consultations and other activities by federal landowners, federal action agencies, and in some instances, State and local governments and/or private third parties. Incremental changes may be either positive (benefits) or negative (costs).

"In *New Mexico Cattle Growers Ass'n v. U.S.F.W.S.*, 248 F.3d 1277 (10th Cir. 2001), however, the 10th Circuit recently held that the baseline approach to economic analysis of critical habitat designations that was used by the Service for the southwestern willow flycatcher designation was 'not in accord with the language or intent of the ESA.' In particular, the court was concerned that the Service had failed to analyze any economic impact that would result from the designation, because it took the position in the economic analysis that there was no economic impact from critical habitat that was incremental to, rather than merely co-extensive with, the economic impact of listing the species. The Service had therefore assigned all of the possible impacts of designation to the listing of the species, without acknowledging any uncertainty in this conclusion or considering such potential impacts as transaction costs, reinitiations, or indirect costs. The court rejected the baseline approach incorporated in that designation, concluding that, by obviating the need to perform any analysis of economic impacts, such an approach rendered the economic analysis requirement meaningless: 'The statutory language is plain in requiring some kind of consideration of economic impact in the CHD phase.'

"In this analysis, the Service addresses the 10th Circuit's concern that we give meaning to the ESA's requirement of considering the economic impacts of designation by acknowledging the uncertainty of assigning certain post-designation economic impacts (particularly section 7 consultations) as having resulted

from either the listing or the designation. The Service believes that for many species the designation of critical habitat has a relatively small economic impact, particularly in areas where consultations have been ongoing with respect to the species. This is because the majority of the consultations and associated project modifications, if any, already consider habitat impacts and as a result, the process is not likely to change due to the designation of critical habitat. Nevertheless, we recognize that the nationwide history of consultations on critical habitat is not broad, and, in any particular case, there may be considerable uncertainty whether an impact is due to the critical habitat designation or the listing alone. We also understand that the public wants to know more about the kinds of costs consultations impose and frequently believe that designation could require additional project modifications.

"Therefore, this analysis incorporates two baselines. One addresses the impacts of critical habitat designation that may be 'attributable co-extensively' to the listing of the species. Because of the potential uncertainty about the benefits and economic costs resulting from critical habitat designations, we believe it is reasonable to estimate the upper bounds of the cost of project modifications based on the benefits and economic costs of project modifications that would be required due to consultation under the jeopardy standard. It is important to note that the inclusion of impacts attributable co-extensively to the listing does not convert the economic analysis into a tool to be considered in the context of a listing decision. As the court reaffirmed in the southwestern willow flycatcher decision, 'the ESA clearly bars economic considerations from having a seat at the table when the listing determination is being made.'

"The other baseline, the lower boundary baseline, will be a more traditional rulemaking baseline. It will attempt to provide the Service's best analysis of which of the effects of future consultations actually result from the regulatory action under review - i.e. the critical habitat designation. These costs will in most cases be the costs of additional consultations, reinitiated consultations, and additional project modifications that would not have been required under the jeopardy standard alone as well as costs resulting from uncertainty and perceptual impacts on markets."

DATED: March 20, 2002

1.0 INTRODUCTION AND BACKGROUND

1. In November 2001, the U.S. Fish and Wildlife Service (the Service) proposed designating critical habitat for the La Graciosa thistle (*Cirsium loncholepis*), Lompoc yerba santa (*Eriodictyon capitatum*), and Gaviota tarplant (*Deinandra increscens ssp. villosa*) on approximately 66,830 acres in San Luis Obispo and Santa Barbara Counties, California. The purpose of this report is to identify and analyze potential economic impacts that could result from the proposed critical habitat designation. This report was prepared by Industrial Economics, Incorporated (IEc), under contract to the Service's Division of Economics.
2. Section 4(b)(2) of the Endangered Species Act (the Act) requires the Service to base designation of critical habitat upon the best scientific and commercial data available, after taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. The Service may exclude areas from critical habitat designation when the benefits of exclusion outweigh the benefits of including the areas within critical habitat, provided the exclusion will not result in extinction of the species.
3. Under the listing of a species, section 7(a)(2) of the Act requires Federal agencies to consult with the Service in order to ensure that activities they fund, authorize, permit, or carry out are not likely to jeopardize the continued existence of the species. The Service defines jeopardy as any action that would appreciably reduce the likelihood of both the survival and recovery of the species. For designated critical habitat, section 7(a)(2) also requires Federal agencies to consult with the Service to ensure that activities they fund, authorize, permit, or carry out do not result in destruction or adverse modification of critical habitat. Adverse modification of critical habitat is defined as any direct or indirect alteration that appreciably diminishes the value of critical habitat for both survival and recovery of the species.

1.1 Description of Species and Habitat

La Graciosa thistle

4. La Graciosa thistle (thistle) is a short-lived, perennial, spreading, mound-like or erect and often fleshy, spiny member of the *Asteraceae* (sunflower) family.¹ For the first year or several years, the plant

¹ Information on the thistle, yerba santa, and tarplant and their habitat was taken from the U.S. Fish and Wildlife Service, *Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for *Cirsium loncholepis* (La Graciosa thistle), *Eriodictyon capitatum* (Lompoc yerba santa), and *Deinandra increscens ssp. villosa* (Gaviota tarplant)*, November 15, 2001 (66 FR 57560-57564).

consists of a low-growing rosette of leaves; the plant then sends up a central flowering stalk which can reach a height of 39 inches. The plant dies upon completion of seed set.

5. The Service considers those physical and biological features which are essential to the survival and recovery of the species. The following are the primary constituent elements (PCEs) that the Service has identified as critical to the survival of the thistle:

- Moist sandy soils associated with dune swales, margins of dune lakes and marshes, and river margins from the Guadalupe Dune complex along the coast and inland to Canada de las Flores;
- Plant communities that support associated species, including coastal dune, coastal scrub, and wetland communities, particularly where these other plant species are found (see proposed rule for list of species); and
- Hydrologic processes, particularly the maintenance of a stable groundwater table that supports the soil moisture regime that appears to be favored by the thistle.

Lompoc yerba santa

6. The Lompoc yerba santa (yerba santa) is a shrub in the *Hydrophyllaceae* (waterleaf) family with narrow, sticky stems up to 10 feet tall. The head-like inflorescence has lavender flowers that are 0.2 to 0.6 inches long. The fruits are four-valved capsules that are 0.03 to 0.1 inches wide, and contain up to five seeds. Although the plant blooms each year, the species depends more on vegetative reproduction to spread than the production of seed.

7. The following are the PCEs that the Service has identified as critical to the survival of the yerba santa:

- Soils with a large component of sand and that tend to be acidic;
- Plant communities that support associated species, including maritime chaparral, particularly where these other plant species are found (see proposed rule for list of species); and
- Habitat directly adjacent upslope and downslope from known populations, as this species appears to spread primarily through vegetative reproduction.

Gaviota tarplant

8. The Gaviota tarplant (tarplant) is a member of the *Asteraceae* (sunflower) family. The plant is a yellow-flowered, variable gray-green, soft, hairy annual that is 12 to 35 inches tall with stems branching

near the base. The plant blooms in the summer, long after other annual herbs and grasses have bloomed. The seeds are most likely dispersed by adhesion of the sticky bracts clasping the seeds to animal fur or feathers.

9. The following are the PCEs that the Service has identified as critical to the survival of the tarplant:
- Sandy soils associated with coastal terraces adjacent to the coast or uplifted marine sediments at interior sites up to 3.5 miles inland from the coast; and
 - Plant communities that support associated species, including needlegrass grassland and coastal sage scrub communities, particularly where these plant species are found (see proposed rule for details).

1.2 Proposed Critical Habitat

10. The Service has proposed critical habitat designation for the thistle within two units: (1) Pismo-Orcutt; and (2) Canada de las Flores. For the yerba santa, the Service has proposed critical habitat within three units: (1) Solomon Hills; (2) Vandenberg; and (3) Santa Ynez Mountains. The proposed critical habitat designation for the tarplant includes five units: (1) Point Sal; (2) Point Arguello; (3) Sudden Peak; (4) Santa Ynez; and (5) Conception-Gaviota.
11. The proposed critical habitat designation for the thistle includes 44,315 acres in San Luis Obispo and Santa Barbara Counties. Approximately 2,553 acres are located on federally-owned or managed lands; 2,148 acres are owned by the State, 592 acres are owned by the County of Santa Barbara, and 39,022 acres of the total acreage are privately-owned. For the yerba santa, the Service has proposed designation for 8,495 acres of critical habitat. Approximately 1,094 acres are on federally-owned or managed lands and 7,401 acres are located on private lands. The Service has proposed critical habitat designation for the tarplant on roughly 14,020 acres of land in Santa Barbara County. Approximately 3,438 acres are located on federally-owned or managed lands; 319 acres are owned by the State; 24 acres are owned by the County of Santa Barbara; and the other 10,239 acres are located on privately-owned lands.

1.3 Relevant Baseline Elements

1.3.1 Regulations

12. Several baseline regulations are relevant to the proposed critical habitat. Baseline regulations may afford protection to the species even in the absence of the Act (e.g., State and county laws governing land use), or they may require similar administrative activities. California has a stringent set of regulations

governing land use, and these regulations may also be triggered by the establishment of critical habitat. Exhibit 1 describes the baseline regulations that affect specific units.

Exhibit 1		
BASELINE REGULATIONS AFFECTING SPECIES		
Regulatory Agency/Act	Description	Units Potentially Affected
California Coastal Commission	In accordance with the California Coastal Act, the agency ensures that economic development on the coast is located, designed, and carried out in an environmentally sustainable manner. The coastal zone extends 1,100 miles and reaches from three miles at sea to, at most, five miles inland. ^a	Pismo-Orcutt, Santa Ynez Mountains, Point Sal, Arguello, and Conception-Gaviota
California Environmental Quality Act (CEQA)	The act requires the identification of environmental effects of proposed projects that have the potential to harm sensitive species. If the lead state agency finds that a project will cause significant impacts to sensitive species, the landowners must prepare an Environmental Impact Report (EIR) and propose Environmentally Superior Alternatives. ^b	All
California Endangered Species Act/California Department of Fish and Game	The California Endangered Species Act (CESA) essentially parallels the main provisions of the Federal Endangered Species Act and is administered by the California Department of Fish and Game. Under CESA, "endangered species" are defined as a species of plant, fish, or wildlife which is "in serious danger of becoming extinct throughout all, or a significant portion of its range" and is limited to species or subspecies native to California. The thistle is state-listed as threatened, the yerba santa as rare, and the tarplant as endangered. ^c	All
^a California Coastal Commission, State of California, <i>The California Coastal Act, Questions and Answers</i> , March 9, 1999, http://www.coastal.ca.gov/qa99.pdf , as viewed January 25, 2002. ^b California Resources Agency, "Summary and Overview of the California Environmental Quality Act," November 12, 1998, http://ceres.ca.gov/topic/env_law/ceqa/summary.html , as viewed August 23, 2000. ^c Ceres Environmental Law, Regulation, and Policy, http://ceres.ca.gov/topic/env_law/cesa/summary.html , as viewed February 4, 2002.		

1.3.2 Overlap With Other Listed Species

13. Several other federally-listed endangered and threatened species are found within the proposed critical habitat units. The presence of these species establishes a record of past section 7 consultation with the Service in San Luis Obispo and Santa Barbara Counties. In addition, future consultations on the thistle, yerba santa, and tarplant may occur in coordination with programmatic consultations and/or Habitat Conservation Plans (HCPs) for activities affecting other species. Based on personal communication with the Service and landowners in the proposed units, Exhibit 2 lists a number of endangered and threatened

species that are likely to be found within the proposed critical habitat units for the thistle, yerba santa, and tarplant.

Exhibit 2	
OVERLAP WITH OTHER LISTED SPECIES	
Unit	Species
Pismo-Orcutt	California brown pelican; California least tern; California red-legged frog; California tiger salamander; tidewater goby; and western snowy plover.
Canada de las Flores	California tiger salamander.
Vandenberg	California brown pelican; California least tern; California red-legged frog; Southern steelhead; tidewater goby; and western snowy plover.
Santa Ynez Mountains	Southern steelhead; Southwestern willow flycatcher.
Point Sal	California brown pelican; California least tern; California red-legged frog; Southern steelhead; tidewater goby; and western snowy plover.
Arguello	California brown pelican; California least tern; California red-legged frog; Southern steelhead; tidewater goby; and western snowy plover.
Sudden Peak	California brown pelican; California least tern; California red-legged frog; Southern steelhead; tidewater goby; and western snowy plover.
Santa Ynez	Southwestern willow flycatcher.
Conception-Gaviota	California red-legged frog; Southern steelhead; and tidewater goby.

1.4 Framework for Analysis

14. The focus of this economic analysis is on section 7 of the Act, which requires Federal agencies to insure that any action authorized, funded, or carried out will not likely jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat. Federal agencies are required to consult with the Service whenever they propose a discretionary action that may affect a listed species or its designated critical habitat. Aside from the protection that is provided under section 7, the Act does not provide other forms of protection to lands designated as critical habitat. Because consultation under section 7 only applies to activities that involve Federal permits, funding or involvement, the designation of critical habitat will not afford any additional protections for species with respect to such strictly private activities.

15. This analysis first identifies land use activities within or in the vicinity of those areas being proposed for critical habitat that are likely to be affected by section 7 of the Act. To do this, the analysis evaluates a “without section 7” scenario and compares it to a “with section 7” scenario. The “without section 7”

scenario constitutes the baseline of this analysis. It represents the level of protection currently afforded the species under the Act, absent section 7 protective measures, which includes other Federal, State, and local laws. The “with section 7” scenario identifies land-use activities likely to involve a Federal nexus that may affect the species or its designated critical habitat, which accordingly have the potential to be subject to future consultations under section 7 of the Act.

16. Economic activities identified as likely to be affected under section 7 and the resulting impacts that section 7 can have on such activities constitute the upper-bound estimate of the proposed critical habitat economic analysis. By defining the upper-bound estimate to include both jeopardy and critical habitat impacts, the analysis recognizes the difficulty in sometimes differentiating between the two in evaluating only the critical habitat effects associated with the proposed rulemaking. This step is adopted in order to ensure that any critical habitat impacts that may occur co-extensively with the listing of the species (i.e., jeopardy) are not overlooked in the analysis.
17. Upon identifying section 7 impacts, the analysis proceeds to consider the subset of impacts that can be attributed exclusively to the critical habitat designation. To do this, the analysis adopts a “with and without critical habitat approach.” This approach is used to determine those effects found in the upper-bound estimate that may be attributed solely to the proposed designation of critical habitat. Specifically, the “with and without critical habitat” approach considers section 7 impacts that will likely be associated with the implementation of the *jeopardy* provisions of section 7 and those that will likely be associated with the implementation of the *critical habitat* provision of section 7. In many cases, impacts associated with the jeopardy standard remain unaffected by the designation of critical habitat and thus would not normally be considered an effect of a critical habitat rulemaking. The subset of section 7 impacts likely to be affected solely by the designation of critical habitat represent the lower-bound estimate of this analysis.
18. The critical habitat designation for the thistle, yerba santa, and tarplant encompasses land under private, State/local, and Federal ownership, with Federal lands being managed by the Service and Vandenberg Air Force Base (Vandenberg). For private lands subject to critical habitat designation, section 7 consultations and modifications to land uses and activities can only be required when a Federal nexus, or connection, exists. A Federal nexus arises if the activity or land use of concern involves Federal permits, Federal funding, or another form of Federal involvement. Section 7 consultations are not required for activities on non-Federal lands that do not involve a Federal nexus.
19. This report estimates impacts of listing and critical habitat designation on activities that are “reasonably foreseeable,” including, but not limited to, activities that are currently authorized, permitted, or funded, or for which proposed plans are currently available to the public. Accordingly, the analysis bases estimates on activities that are likely to occur within a ten-year time horizon.

1.5 **Methodological Approach**

20. This report relies on a sequential methodology and focuses on distilling the salient and relevant aspects of potential economic impacts of designation. The methodology consists of:

- Determining the current and projected economic activity within and around the proposed critical habitat area;
- Considering how current and future activities that take place or will likely take place on the Federal and private land could adversely affect proposed critical habitat;
- Identifying whether such activities taking place on privately-owned property within the proposed critical habitat boundaries are likely to involve a Federal nexus;
- Evaluating the likelihood that identified Federal actions and non-Federal actions having a Federal nexus will require consultations under section 7 of the Act and, in turn, that such consultations will result in modifications to projects;
- Estimating per-unit costs of expected section 7 consultations, project modifications and other economic impacts associated with activities in or adjacent to areas proposed as critical habitat;
- Estimating the upper bound of total costs associated with the area proposed for the designation (including costs that may be attributed co-extensively with the listing of the species) and the lower bound of costs (i.e., costs attributable solely to critical habitat);
- Determining the benefits that may be associated with the designation of critical habitat; and
- Assessing the extent to which critical habitat designation will create costs for small businesses and/or affect property values as a result of modifications or delays to projects.

1.6 **Information Sources**

21. The primary sources of information for this report were communications with personnel from the Service, the Santa Barbara County Department of Planning and Development, the San Luis Obispo Department of Planning and Building, privately-owned oil companies, Gaudalupe-Nipomo Dunes National Wildlife Refuge, California Parks and Recreation, Santa Barbara County Parks, the California Department of Fish and Game, the U.S. Army Corps of Engineers (ACOE) (Ventura Office), Vandenberg, City of Santa Maria Planning Office, Natural Resource Conservation Service, and the California Department of Transportation. Publicly available data (e.g., information available on the Internet) were also used to augment the analysis.

2.0 SECTION 7 COSTS

22. This section identifies the current land use activities within and/or affecting the proposed critical habitat designation as well as the location, nature, and extent of future activities that may be affected by section 7 implementation in the critical habitat area. The section begins by providing an overview of the categories of economic impacts that are likely to arise due to the implementation of section 7 in the proposed critical habitat areas. It then presents the number of technical assistance efforts, consultations, and project modifications that are likely to occur for each land use activity.
23. The second part of this section presents costs associated with these consultations. It describes per-effort costs of technical assistance efforts, consultations, and project modifications. Total cost estimates are then calculated by applying these per-effort costs to land use activities described in the first half of the section. Finally, this section summarizes total section 7 costs by species and unit, indicating costs that are attributable solely to the designation of critical habitat, and discusses impacts on small businesses.

2.1 Categories of Economic Impacts Associated with Section 7 Implementation

24. The following section provides an overview of the categories of economic impacts that are likely to arise due to the implementation of section 7 in the area proposed as critical habitat for the plants.

2.1.1 Technical Assistance

25. Frequently, the Service responds to requests for technical assistance from private landowners and developers who have questions regarding whether specific activities will constitute adverse modification of critical habitat. Technical assistance costs represent the estimated economic costs of informational conversations, letters, and meetings between landowners or developers and the Service regarding the designation of critical habitat for the plants. Most likely, such communication will occur between municipal or private property owners and the Service regarding lands designated as critical habitat or lands adjacent to critical habitat. The Service's technical assistance activities are discretionary and often occur in instances where a Federal nexus does not exist.

2.1.2 Section 7 Consultations

26. Section 7(a)(2) of the Act requires Federal agencies (Action agencies) to consult with the Service whenever activities that they undertake, authorize, permit, or fund may affect a listed species or designated critical habitat. In some cases, consultations will involve the Service and another Federal agency only, such as the U.S. Forest Service. More often, they will also include a third party involved in projects on non-Federal lands with a Federal nexus, such as state agencies and private landowners.
27. During a consultation, the Service, the Action agency, and the land owner applying for Federal funding or permitting (if applicable) communicate in an effort to minimize potential adverse effects to the

species and/or to the proposed critical habitat. Communication between these parties may occur via written letters, phone calls, in-person meetings, or any combination of these. The duration and complexity of these interactions depends on a number of variables, including the type of consultation, the species, the activity of concern, the region where critical habitat has been proposed, and the landowner.

28. Section 7 consultations with the Service may be either informal or formal. *Informal consultation*, which consists of informal discussions between the Service, the Action agency, and the applicant concerning an action that may affect a listed species or its designated critical habitat, is designed to identify and resolve potential concerns at an early stage in the planning process. By contrast, a *formal consultation* is required if the Action agency determines that the proposed action is likely to adversely affect the listed species or designated critical habitat in ways that cannot be resolved through informal consultation. Regardless of the type of consultation or proposed project, section 7 consultations can require substantial administrative effort on the part of all participants.

2.1.3 Project Modifications

29. The section 7 consultation process may involve some modifications to a proposed project. These modifications may be agreed upon by the Action agency and the applicant and included in the project description as avoidance and minimization measures, or they may be included in the Service's biological opinion on the proposed action as discretionary conservation measures to assist the Federal agency in meeting their obligations under section 7(a)(1) of the Act.² In some cases, the Service may determine that the project is likely to jeopardize the continued existence of the species and/or destroy or adversely modify its designated critical habitat. In these cases the Service will include reasonable and prudent alternatives to the proposed project. The reasonable and prudent alternatives are typically developed by the Service in cooperation with the Action agency and, when applicable, the applicant. Alternatively, the Action agency can develop its own reasonable and prudent alternatives, or seek an exemption for the project. All of these project modifications have the potential to represent some cost to the Action agency or the applicant.

² Section 7(a)(1) requires Federal agencies to utilize their authorities to further the purposes of the Act by carrying out programs for the conservation of listed species.

2.2 Impacts of Section 7 Implementation on Land Use Activities

30. This section identifies the current land use activities within the proposed critical habitat designation, as well as the location, nature, and extent of future activities that may be affected by section 7 implementation in the critical habitat area. Because the land use activities across the designations for the three plants are similar, this section is organized by land use activity. The analysis assumes that the land use activities described below will occur in areas containing the PCEs for the thistle, yerba santa, and/or the tarplant, and will therefore result in section 7 impacts.

2.2.1 Oil and Gas Activities

31. Seven oil and gas companies located within the proposed critical habitat designation have projects with a Federal nexus and therefore are subject to section 7 requirements.³ Three of these companies (All American Pipeline Company, Arguello, Inc., and Equilon) are actively producing oil, while the other four (Unocal at Guadalupe Oil Field, Chevron, Texaco at Hollister Ranch, and Unocal at Cojo/Government Point) are decommissioning pipelines and/or remediating oil fields. The potential section 7 impacts are summarized in Exhibit 3.
32. All of these oil companies are subject to the requirements of CEQA, and those in the Pismo-Orcutt and Conception-Gaviota units are also subject to the requirements of the California Coastal Act (both statutes are described briefly in Exhibit 1). As a result, the companies in these areas will consider the impacts of their actions on sensitive species, regardless of the Act. Therefore, the economic impacts associated with section 7 consultation requirements are less than they would be without these baseline regulations. Because, in this instance, it is difficult to separate economic impacts associated with these baseline regulations from the requirements of section 7, this analysis makes the conservative assumption that all of the costs are attributable to section 7.
33. Guadalupe Oil Field is a 2,800-acre former oil field owned by Unocal that is located northwest of the town of Guadalupe within the Pismo-Orcutt unit. In over 50 years of operation, the company spilled 10 million to 20 million gallons of petroleum products. Unocal stopped oil production in 1994 and has been cleaning up the oil field by installing extraction wells and excavating and treating contaminated beach sediments. In 1998, the California Coastal Commission ordered Unocal to generate plans for both

³ The Energy Division of the Santa Barbara County Department of Planning and Development expects that several other oil companies located within proposed critical habitat will not be impacted under section 7. These projects include Nuevo Energy, the Molino Gas Project and the CalResources/Aera clean-up project.

researching and restoring the thistle and its habitat. Unocal estimates that there will be, at most, six formal consultations regarding clean-up activities in the next ten years.⁴

34. Chevron is currently cleaning up oil fields and recapping oil wells in the Canada de las Flores unit of the proposed designation. The company hopes that the clean-up will be complete by mid-2004. Chevron has been in regular contact with the Service regarding its efforts to avoid adverse impacts to the California tiger salamander. Because the project has no Federal nexus and given Chevron's consultation history regarding the California tiger salamander during the project, this analysis assumes that the Service will provide technical assistance to Chevron approximately eight times in the next ten years.⁵
35. All American Pipeline Company is an active oil company with a network of pipelines that runs through a significant part of Santa Barbara County. Of the pipelines located within the proposed designation, approximately six pipelines cross streams. When one of these pipelines requires maintenance, the company is likely to obtain an ACOE permit pursuant to section 404 of the Clean Water Act, which will trigger a formal consultation with the Service. The tarplant's PCEs are not likely to be found immediately adjacent to the stream crossing. However, a given repair project could require the construction of an access road or cause disturbance to nearby upland habitat containing the PCEs. Based upon estimates from the ACOE, this analysis predicts that approximately one-third of these repair projects are likely to impact the plant's PCEs, and those projects are likely to lead to formal consultation.⁶ Because each of these pipelines is expected to need repairs twice in the next ten years, and one-third of those repairs may impact the PCEs, this analysis assumes that four consultations may occur over a ten-year period.⁷
36. Arguello, Inc. has operated the Point Arguello Project, an offshore oil and gas development project located in the Conception-Gaviota unit since 1999. The project includes three drilling and production platforms, an oil heating and metering facility, and a system of onshore and offshore pipelines. Maintenance of pipelines near the 22 stream crossings within the designation will likely require ACOE permits pursuant

⁴ Personal communication with Onsite Environmental Coordinator for Guadalupe Oil Field, January 17, 2002; Personal communication with Consultant to Unocal, January 22, 2002.

⁵ This number derives from the assumption that Chevron will contact the Service four times per year until mid-2004, based on company contacts with the Service regarding the California tiger salamander. Personal communication with Chevron, January 31, 2002; personal communication with Ventura Fish and Wildlife Office, March 14, 2002.

⁶ Personal communication with the Army Corps of Engineers, Ventura Office, March 14, 2002.

⁷ Personal communication with Santa Barbara County Planning and Development Office, Energy Division, January 30 and February 4, 2002. This analysis assumes that repairs to the pipeline will be needed at each of these creek crossings twice in the next ten years (personal communication with Army Corps of Engineers, Ventura Office, February 6, 2002).

to section 404 of the Clean Water Act. If these pipelines need repairs twice in the next ten years, and one-third of those repair projects impact the PCEs, then 14 formal consultations are likely in the next ten years. Because the company does not foresee any other projects that will have a Federal nexus, these maintenance activities will generate the only section 7 impacts for Arguello, Inc.⁸

37. Equilon is another company producing oil within the Conception-Gaviota unit of the proposed designation. Two of Equilon's pipelines cross streams. Like the actively-producing oil companies mentioned above, this analysis expects that the maintenance of these pipelines will require ACOE permits. Assuming that each of these pipelines needs repairs twice in the next ten years, and the PCEs are present at one-third of these repair projects, two formal consultations associated with this project are likely in the next ten years.⁹
38. Within the Conception-Gaviota unit, Texaco's Hollister Ranch Pipeline Abandonment Project entails the abandonment of pipelines over a seven-mile corridor, crossing 11 creeks and ravines. In order to minimize environmental impacts, the County of Santa Barbara's Energy Division directed Texaco to abandon more than 97 percent of the emptied pipelines in place. Texaco will try to pull the pipeline at Agua Creek from underneath the creek to decrease impacts to sensitive species. Because the exact scope of this project is unclear, this analysis conservatively assumes that it may impact the tarplant's PCEs. This activity will likely require a permit from the ACOE and trigger a formal consultation.¹⁰
39. Unocal is decommissioning a former production site that consisted of five locations: the Unocal Cojo Marine Terminal, the Government Point production facility, the Point Conception production facility, the pipeline connecting the two production facilities, and offshore pipelines. The company is currently decommissioning pipelines, tanks, above- and below-ground facilities, and remediating some contaminated soils. Only two of these projects are expected to require an ACOE permit: (1) the removal of a pipeline near Bercos Creek; and (2) the removal of the marine loading pipeline. Because the exact location and scope of these projects is unclear, this analysis conservatively assumes that these projects may adversely affect the tarplant or its proposed habitat. Therefore, two formal consultations are expected. Because none of the other activities have Federal nexuses, no other section 7 impacts are anticipated.¹¹

⁸ Personal communication with Supervisor of Environmental, Safety, and Regulatory Compliance, Arguello, Inc., January 29, 2002.

⁹ Personal communication with Santa Barbara County Planning and Development Office, Energy Division, February 4, 2002.

¹⁰ Personal communication with Energy Division of Santa Barbara County Planning and Development, January 23, 2002.

¹¹ Personal communication with Energy Division of Santa Barbara County Planning and Development, January 23, 2002.

40. As noted above, Exhibit 3 summarizes section 7 impacts to oil and gas companies. The table summarizes the impacts by unit and company, and describes each potentially affected activity and the corresponding Federal nexus. Among these seven companies, eight technical assistance efforts and 29 formal consultations are anticipated over ten years.

Exhibit 3				
SUMMARY OF CONSULTATIONS AND TECHNICAL ASSISTANCE INVOLVING OIL AND GAS COMPANIES				
Unit	Landowner	Activity	Potential Federal Nexus	Number of Consultations and Technical Assistance
Pismo-Orcutt	Unocal (Guadalupe Oil Field)	Excavation sites in wetland areas	ACOE 404 permit	6 formal consultations
Canada de las Flores	Chevron	Oil field remediation	None	8 technical assistance
Conception-Gaviota	All American Pipeline Company	Maintenance of pipeline right-of-way at 2 stream crossings	ACOE 404 permit	4 formal consultations
	Arguello, Inc.	Maintenance of pipeline right-of-way at 7 stream crossings	ACOE 404 permit	14 formal consultations
	Equilon (Gaviota Terminal)	Maintenance of pipeline right-of-way at 1 stream crossings	ACOE 404 permit	2 formal consultations
	Texaco (Hollister Ranch)	Decommissioning oil pipes near Agua Creek	ACOE 404 permit	1 formal consultation
	Unocal (Cojo/Government Point)	Decommissioning oil pipes near Bercos Creek, removal of marine loading pipeline	ACOE 404 permit	2 formal consultations

2.2.2 Private Development

41. According to county planning authorities and the California Urban and Biodiversity Analysis (CURBA) model, most of the private lands within the critical habitat units are zoned for agricultural uses or open space and are likely to remain rural over the next ten years.¹² Future urban growth is likely to be

¹² John D. Landis, et al., "Development and Pilot Application of the California Urban and Biodiversity Analysis (CURBA) Model". Accessed at <http://www.esri.com/library/userconf/proc98/PROCEED/TO600/PAP571/P571.HTM> on January 23, 2002. The CURBA model uses GIS technology to provide spatial predictions of the extent of urban growth in the year 2020. The model relies on the current location and type of farmland and urban development, slope and elevation data, location of roads and hydrographic features, wetlands and flood zones, proximity to jurisdictional boundaries, local growth policies, and recent population and job growth. The CURBA model defines urbanized land as land

restricted to those areas designated for residential and commercial development in local community plans. These designated areas are expected to be sufficient to accommodate growth patterns over the next ten years. Projects with probable section 7 impacts are: 1) suburban development of Mahoney Ranch; 2) construction of the Union Valley Parkway; and 3) residential development of Hollister Ranch. Additional development projects and activities, such as suburban development of key site 22 near the unincorporated town of Orcutt, may occur, but have not yet been formally planned and cannot be quantified in this analysis.¹³ Exhibit 4 summarizes section 7 impacts projected for private development activities.

42. ***Mahoney Ranch.*** The eastern border of the Pismo-Orcutt unit skirts the western border of the City of Santa Maria and the unincorporated town of Orcutt. Approximately one percent of the unit is likely to substantially urbanize within ten years. The *Santa Maria Sphere and Annexation Study* calls for an agricultural area known as Mahoney Ranch, located north of the Tanglewood neighborhood (excluded from critical habitat) and west of the Santa Maria Public Airport, to be annexed by the City of Santa Maria and zoned for residential and commercial development. Mahoney Ranch is 460 acres in size, and current plans call for 278 acres to be zoned for residential development, 23 acres for commercial development, 119 acres for agriculture, and 40 acres for open space.¹⁴ The residential areas of Mahoney Ranch will contain approximately 1,700 housing units. Given that Mahoney Ranch includes a lake and four streams, the project is likely to involve ACOE permitting pursuant to section 404 of the Clean Water Act. ACOE expects to engage in one formal consultation on wetland fill activities in Mahoney Ranch, treating the entire development as a unit.^{15,16}

occupied by structures with a building density of at least one unit every 1.5 acres.

¹³ All of the economic impacts associated with private development are likely to occur in Santa Barbara County. Although part of the Pismo-Orcutt unit is in San Luis Obispo County, no residential development and road construction projects are currently planned within the proposed critical habitat. Personal communication with Planner, San Luis Obispo County, February 21, 2002.

¹⁴ Personal communication with Planner, City of Santa Maria, February 5, 2002.

¹⁵ Personal communication with Army Corps of Engineers, Ventura Office, February 6, 2002.

¹⁶ Development of Mahoney Ranch may necessitate an upgrade and expansion of the Laguna County Sanitation District Water Reclamation Plant, which is located in the Pismo-Orcutt unit. However, this analysis assumes that the upgrade will not lead to a consultation because specific plans for plant expansion have not yet been developed, alternative treatment systems not located within the critical habitat unit may be available, and the upgrade may not involve a Federal nexus. Wastewater treatment plant managers plan to fund future expansion using funds from increased connection fees in new residential and commercial developments, rather than state revolving funds. The use of private funds would likely avoid the Federal nexus associated with funding from the U.S. Environmental Protection Agency (EPA). Personal communication with Laguna County Sanitation District, March 18, 2002.

43. ***Orcutt Community Plan - Key Site 22.*** The Community Plan for the unincorporated town of Orcutt identifies key site 22, located in the southeastern corner of the Pismo-Orcutt critical habitat unit, as a site that will likely be rezoned in the future from agriculture and open space to residential and commercial development. The site, which includes a vernal wetland-sand dune complex that is prime thistle habitat, will be planned as a unit. The Community plan proposes that approximately 60 percent of the site be developed with more than 2,000 housing units, plus schools and commercial areas, and proposes to zone the rest as open space. However, the plan also states that the county will not rezone key site 22 for development until January 1, 2007. Because no developers are currently proposing to use this site, and because the plan could change depending on future development proposals, quantification of impacts in this area is not possible at this time.
44. ***Other Private Development Activities.*** The area west of Santa Maria within the Pismo-Orcutt unit is currently zoned for residential ranchettes and agriculture. Aside from Mahoney Ranch, urban expansion into this region is unlikely within ten years due to the lengthy and stringent process required to revise zoning codes in Santa Barbara county.¹⁷ Similarly, five small areas are excluded from the Pismo-Orcutt unit because the habitat has already been urbanized or disturbed. These include: the towns of Guadalupe and Betteravia; the Tanglewood neighborhood; and two other small sites that may include a sugar beet processing plant and a sewage treatment plant. Areas surrounding these excluded areas most likely will remain agricultural due to the stringent rezoning process.¹⁸ Along with agriculture, activities on private lands in the Pismo-Orcutt unit include scattered auto wrecking yards, packing sheds, an asphalt plant, and a proposed county jail. Historically, the activities on these parcels have not led to section 7 consultations due to the lack of a Federal nexus, and future consultations are not anticipated.¹⁹
45. ***Union Valley Parkway.*** A western extension of the Union Valley Parkway is planned to meet Highway 1 west of Orcutt, in the southeast portion of the Pismo-Orcutt unit.²⁰ The section of the Parkway between California Boulevard and Hummel Drive is currently funded and is in the planning phases; the section west of California Boulevard is proposed but not yet funded. Federal Highway Administration

¹⁷ Personal communication with Planner, Santa Barbara County, January 23, 2002. The Pismo-Orcutt unit also includes land owned by the Santa Maria Public Airport, but the land included is zoned for agriculture and is unlikely to experience commercial development within ten years.

¹⁸ Personal communication with Biologist, Ventura Fish and Wildlife Office, February 3, 2002.

¹⁹ Personal communication with Army Corps of Engineers, Ventura Office, February 6, 2002.

²⁰ Personal communication with California Department of Transportation (CalTrans), Division of Environmental Analysis, February 13, 2002.

funding or ACOE permitting may establish a Federal nexus, and this analysis assumes that construction of the Union Valley Parkway will lead to one formal consultation with the Service within ten years.²¹

46. **Hollister Ranch.** Hollister Ranch is an exclusive, large-lot residential development, as well as a working ranch. Hollister Ranch contains 135 100-acre parcels and spans three of the proposed critical habitat units (the Santa Ynez Mountains, Santa Ynez, and Conception-Gaviota units). Approximately 25 percent of the parcels are not yet developed but are approved for residential construction. Based on projected rates of residential construction on currently undeveloped lots, this analysis assumes that ten lots within Hollister Ranch are likely to undergo house and road construction over a ten-year period. Construction of each lot each will involve an ACOE nexus associated with section 404 permitting, because the area is crossed by numerous small creeks.^{22,23} The analysis also assumes that these consultations will remain informal, because of the likelihood that the projects can be designed to avoid jeopardizing the plants, given the large size of the residential lots. These ten consultations will be distributed among the three critical habitat units that include Hollister Ranch parcels based on the size of Hollister Ranch and extent of overlap with the proposed critical habitat units.

47. As noted above, Exhibit 4 summarizes section 7 impacts on private development. The table summarizes the impacts by unit and development project, and explains the potentially affected activities and corresponding Federal nexuses. In total, two formal consultations and ten informal consultations are anticipated for development projects over ten years.

²¹ According to CalTrans, Division of Environmental Analysis, additional maintenance activities related to rehabilitation of existing roadways may be required in Santa Barbara County over the next ten years, and may lead to section 7 consultation if Federal funding is involved. However, this analysis does not attempt to estimate future consultations associated with roadway maintenance projects, because no federally-funded maintenance projects are presently occurring within the proposed critical habitat units, and CalTrans cannot project future projects that may occur.

²² Personal communication with Army Corps of Engineers, Ventura Office, February 6, 2002; personal communication with Planner, Santa Barbara County, February 1, 2002.

²³ Personal communication with Biologist, Ventura Fish and Wildlife Office, February 3, 2002. The estimate of ten consultations in Hollister Ranch involving an ACOE nexus is conservative, because areas containing the tarplant and yerba santa PCEs may not be included in ACOE's jurisdiction, which centers on stream beds. However, the upland extent of jurisdiction varies on a case-by-case basis, so this analysis adopts the conservative assumption that all ten predicted residential construction projects will involve an ACOE nexus and affect areas containing the PCEs for the tarplant and/or the yerba santa.

Exhibit 4				
SUMMARY OF CONSULTATIONS AND TECHNICAL ASSISTANCE INVOLVING PRIVATE DEVELOPMENT				
Unit	Land Use	Activity	Potential Federal Nexus	Number of Consultations and Technical Assistance
Pismo-Orcutt	Residential and/or commercial-industrial development	Annexation of 460 acre Mahoney Ranch area to City of Santa Maria, leading to residential and commercial development	ACOE 404 permit	1 formal consultation
	Road construction	Extension of the Union Valley Parkway through Orcutt to Highway 1	ACOE 404 permit or DOT funding ^a	1 formal consultation
Santa Ynez Mountains	Residential development	Residential development and associated road construction within Hollister Ranch	ACOE 404 permit	4 informal consultations
Santa Ynez	Residential development	Residential development and associated road construction within Hollister Ranch	ACOE 404 permit	2 informal consultations
Conception-Gaviota	Residential development	Residential development and associated road construction within Hollister Ranch	ACOE 404 permit	4 informal consultations
^a DOT = U.S. Department of Transportation				

2.2.3 Vandenberg Air Force Base

48. Vandenberg comprises 99,492 acres on the south-central California coast. The proposed critical habitat designation includes 4,532 acres of Vandenberg land. Most of this land is zoned as open space by Vandenberg's Integrated Natural Resources Management Plan (INRMP), but various activities on these lands may be impacted by the designation. These activities are summarized in Exhibit 5.
49. This analysis assumes that the new version of the INRMP that Vandenberg will develop in 2006 will require a formal consultation with the Service, because the base includes areas designated as critical habitat for the yerba santa and the tarplant. This analysis assumes that the costs associated with this consultation will be distributed evenly among the five units located within Vandenberg.
50. Lompoc Federal Penitentiary has a lease to graze cattle on 23,500 acres within Vandenberg.²⁴ Approximately 1,470 of these acres (six percent) are within the designation. Of these, approximately 150 acres are in the Arguello unit, 850 acres are in the Sudden Peak unit, and 470 acres are in the Conception-Gaviota unit. The Service does not expect that the penitentiary will stop grazing these areas but may

²⁴ Vandenberg Air Force Base, *Draft Integrated Natural Resources Management Plan November 2001-November 2006*, November 16, 2001.

recommend a modified grazing plan to accommodate the needs of the tarplant.²⁵ One formal consultation will likely be initiated on behalf of the grazing land in all three units. This analysis distributes the cost of the consultation among the three affected units: Arguello, Sudden Peak, and Conception-Gaviota.

51. The Arguello unit also contains a site, Space Lodge Complex-6 (SLC-6), that will begin space launches in 2003. Because the site is fully constructed and acidic deposition resulting from each launch is likely to be very localized, the impact of this activity is not anticipated to be great. A formal consultation was initiated with Vandenberg in December 1999 over a different space launch site, that included the beach Layia, a federally-listed plant, as well as the snowy plover, and the Southwestern willow flycatcher.²⁶ Based on this similar past consultation, and because it is difficult to state conclusively at this time whether the PCEs for the tarplant are present at the site, this analysis conservatively predicts that there will be one formal consultation regarding the activity.²⁷
52. As noted above, Exhibit 5 summarizes section 7 impacts on Vandenberg. The table illustrates the possible section 7 impacts involving the INRMP, the penitentiary's grazing regimen, and the space launch site, and how these impacts can reasonably be distributed among the units.

²⁵ Personal communication with Biologist, Ventura Fish and Wildlife Office, February 1, 2002.

²⁶ Personal communication with Botanist, March 18, 2002.

²⁷ Personal communication with Botanist, Vandenberg Air Force Base, January 24, 2002.

Exhibit 5			
SUMMARY OF CONSULTATIONS AND TECHNICAL ASSISTANCE INVOLVING VANDENBERG AIR FORCE BASE			
Unit	Activity	Potential Federal Nexus	Number of Consultations and Technical Assistance
Vandenberg	INRMP	Federal ownership	0.2 formal consultation
Point Sal	INRMP	Federal ownership	0.2 formal consultation
Arguello	INRMP	Federal ownership	0.2 formal consultations
	Grazing	Federal ownership	0.33 formal consultation
	Space launch site	Federal ownership	1 formal consultation
Sudden Peak	INRMP	Federal ownership	0.2 formal consultation
	Grazing	Federal ownership	0.34 formal consultation
Conception-Gaviota	INRMP	Federal ownership	0.2 formal consultation
	Grazing	Federal ownership	0.33 formal consultation

2.2.4 Agriculture

53. The majority of private lands in the proposed critical habitat units are used for agriculture (row crops), grazing, and vineyards. The most likely Federal nexus associated with agricultural activities is voluntary funding, or cost-sharing, from the Department of Agriculture's Natural Resource Conservation Service (NRCS). Otherwise, section 7 impacts are unlikely to arise unless there are major conversions to different land uses and crops. Section 7 impacts associated with agricultural activities are summarized by unit in Exhibit 6.
54. NRCS is not currently funding projects in any of the proposed critical habitat units. However, a high potential exists for future NRCS projects in the Pismo-Orcutt, Canada de las Flores, Solomon Hills, Conception-Gaviota, Santa Ynez Mountains, and Santa Ynez units. This analysis assumes that most of these NRCS projects will involve technical assistance from the Service but are unlikely to lead to formal or informal consultation. Therefore, ten technical assistance calls in each of the critical habitat units with likely future NRCS projects are predicted over ten years.²⁸
55. Major agricultural conversions are likely to trigger section 7 consultation. In the Canada de las Flores unit, privately-owned land is being converted to a vineyard. NRCS may engage in one formal

²⁸ Personal communication with Natural Resource Conservation Service, Santa Barbara County, February 5, 2002.

consultation related to vineyard activities, depending on whether the private landowner requests NRCS assistance or funding.²⁹ In addition, the Service may fund additional voluntary restoration measures through the Partners for Fish and Wildlife Program.³⁰ Although the Service cannot predict whether these restoration measures will harm the thistle, this analysis adopts the conservative assumption that the funding will lead to an additional formal consultation.

56. As noted above, Exhibit 6 summarizes section 7 impacts on agricultural activities. The table summarizes the impacts by unit, and explains the potentially affected activities and corresponding Federal nexuses. In total, two formal consultations and 60 technical assistance efforts are anticipated for agricultural activities over ten years.

Exhibit 6			
SUMMARY OF CONSULTATIONS AND TECHNICAL ASSISTANCE INVOLVING AGRICULTURAL ACTIVITIES			
Unit	Activity	Potential Federal Nexus	Number of Consultations and Technical Assistance
Pismo-Orcutt	Agriculture (extensive row crops), grazing	NRCS	10 technical assistance
Canada de las Flores	Vineyard conversion and associated HCP development	NRCS, ACOE	10 technical assistance, 2 formal consultations
Solomon Hills	Grazing	NRCS	10 technical assistance
Santa Ynez Mountains	Agriculture, grazing	NRCS	10 technical assistance
Santa Ynez	Agriculture, grazing	NRCS	10 technical assistance
Conception-Gaviota	Agriculture, grazing	NRCS	10 technical assistance

2.2.5 State and National Parks, Recreation Areas, and Refuges

57. Exhibit 7 summarizes the activities at local, State, and National parks located within the proposed critical habitat that may have Federal nexuses and be affected by section 7 of the Act. Generally, these areas are already managed to protect habitat, so economic impacts are anticipated to be minimal. The table illustrates the potential section 7 impacts upon two parks managed by the County of Santa Barbara, two parks owned by the California Department of Parks and Recreation, and a National Wildlife Refuge,

²⁹ Personal communication with Army Corps of Engineers, Ventura Office, February 6, 2002; personal communication with Natural Resource Conservation Service, Santa Barbara County, February 5, 2002.

³⁰ Personal communication with Biologist, Ventura Fish and Wildlife Office, March 3, 2002.

which is managed by the Service. Pismo State Vehicle Recreation Area, another State-owned park within the designation, is not included in the table, because the California Department of Parks and Recreation does not expect any future projects at the park to be impacted by section 7.³¹

Exhibit 7					
SUMMARY OF CONSULTATIONS AND TECHNICAL ASSISTANCE INVOLVING PARKS, RECREATION AREAS, AND THE NATIONAL WILDLIFE REFUGE					
Unit	Landowner	Property	Activity	Potential Federal Nexus	Number of Consultations and Technical Assistance
Pismo-Orcutt	U.S. Fish and Wildlife Service	Guadalupe-Nipomo Dunes National Wildlife Refuge	Public Use Management Plan, Habitat Management Plan, Weed Management Plan ^a	Federal ownership	3 formal consultations ^b
	California Department of Parks and Recreation	Oceano Dunes State Preserve	Breaching the mouth of Oso Flaco Creek	ACOE 404 permit	1 formal consultation ^c
	Santa Barbara County Parks	Rancho Guadalupe Dunes Preserve	Reconstruction of parking lot, development of road shoulder parking area	FEMA ^d funding	2 formal consultations ^e
Conception-Gaviota	Santa Barbara County Parks	Jalama Beach County Park	Construction of beach access steps	ACOE 404 permit	1 formal consultation
	California Department of Parks and Recreation	Gaviota State Park	Coastal bicycle trail	DOT funding	1 formal consultation ^f

^a These management plans are components of the Comprehensive Conservation Plan, which the National Wildlife Refuge Administration Act requires that the refuge complete within the next 15 years. Because the Service manages the Refuge, these are internal consultations, but will require approximately the same level of effort as a formal consultation. The cost of each of these consultations is the same as a formal consultation without a third party or a biological assessment.

^b Personal communication with Guadalupe-Nipomo Dunes National Wildlife Refuge, January 18, 2002.

^c Information on the Pismo Dunes State Preserve and Oceano Dunes State Preserve is courtesy of personal communication with California Department of Parks and Recreation, January 28, 2002.

^d FEMA= Federal Emergency Management Agency

^e Information on Rancho Guadalupe Dunes Preserve and Jalama County Park is courtesy of Santa Barbara County Parks, January 28, 2002.

^f Personal communication with California State Parks, Gaviota, January 31, 2002.

³¹ Personal communication with California Department of Parks and Recreation, January 31, 2002.

2.3 **Estimated Costs of Technical Assistance Efforts and Consultations**

58. Estimates of the cost of an individual consultation were developed from a review and analysis of historical section 7 files from a number of Service field offices around the country. These files addressed consultations conducted for both listings and critical habitat designations. Cost figures were based on an average level of effort for consultations of low, medium, or high complexity, multiplied by the appropriate labor rates for staff from the Service and other Federal agencies. Estimates take into consideration the level of effort of the Service, the Action agency, and the applicant during both formal and informal consultations, as well as the varying complexity of consultations. Informal consultations are assumed to involve a low to medium level of complexity. Formal consultations are assumed to involve a medium to high level of complexity. Section 7 consultation costs include the administrative costs associated with conducting the consultation, such as the cost of time spent in meetings, preparing letters, and in some cases, developing a biological assessment and biological opinion.
59. Cost estimates for technical assistance are based on an analysis of past technical assistance efforts by the Service in southern California (Carlsbad Field and Wildlife Office). Technical assistance costs represent the estimated economic costs of informational communications, letters, and meetings between landowners or managers and the Service regarding the designation of critical habitat for the thistle, yerba santa, and tarplant. Most likely, such conversations will occur between municipal or private property owners and the Service regarding areas designated as critical habitat or lands adjacent to critical habitat. Costs associated with these communications include the opportunity cost of time spent in conversation, as well as staff costs.
60. Estimated administrative costs associated with section 7 consultations, re-initiations, and technical assistance efforts are presented in Exhibit 8 (these are per effort estimates). The low and the high scenarios represent a reasonable range of costs for each type of interaction. For example, when the Service participates in technical assistance with a third party regarding a particular activity, the cost of the Service's effort is expected to be approximately \$260 to \$680. The cost of the third party's effort is expected to be approximately \$600 to \$1,500.

Exhibit 8					
ESTIMATED ADMINISTRATIVE COSTS OF CONSULTATION AND TECHNICAL ASSISTANCE EFFORTS FOR THE LA GRACIOSA THISTLE, LOMPOC YERBA SANTA, AND GAVIOTA TARPLANT (PER EFFORT)					
Critical Habitat Impact	Scenario	Service	Action Agency	Third Party	Biological Assessment^a
Technical Assistance	Low	\$260	\$0	\$600	\$0
	High	\$680	\$0	\$1,500	\$0
Informal Consultation	Low	\$1,000	\$1,300	\$1,200	\$0
	High	\$3,100	\$3,900	\$2,900	\$4,000
Formal Consultation	Low	\$3,100	\$3,900	\$2,900	\$4,000
	High	\$6,100	\$6,500	\$4,100	\$5,600

^a A third party bears the cost of a biological assessment. When no third party is involved, the Action agency bears the cost.

Notes: Low and high estimates primarily reflect variations in staff wages and time involvement by staff. Technical assistance also has educational benefits to the landowner or manager and to the Service.

Sources: IEC analysis based on data from the Federal Government General Schedule Rates, Office of Personnel Management, 2002, and level of effort information from Biologists in the U.S. Fish and Wildlife Service.

61. Exhibit 9 displays estimates of total technical assistance and consultation costs under section 7 for the thistle, yerba santa, and tarplant by land use activity, and Exhibit 10 displays technical assistance and consultation costs by critical habitat unit. The cost estimates were calculated by multiplying the number of expected consultations or technical assistance efforts by the per-effort cost of these actions (shown in Exhibit 8).

Exhibit 9					
ESTIMATED SECTION 7 TECHNICAL ASSISTANCE AND CONSULTATION COSTS FOR THE LA GRACIOSA THISTLE, LOMPOC YERBA SANTA, AND GAVIOTA TARPLANT BY LAND USE ACTIVITY (TOTAL OVER TEN YEARS)					
Land Use Activity		Technical Assistance	Informal Consultations^a	Formal Consultations^a	Total Costs
Oil and Gas	Total Number of Efforts	8	N/A	29	\$410,000 to \$664,100
	Total Cost of Efforts	\$6,900 to \$17,400	N/A	\$403,100 to \$646,700	
Private Development	Total Number of Efforts	N/A	10	2	\$62,800 to \$183,600
	Total Cost of Efforts	N/A	\$35,000 to \$139,000	\$27,800 to \$44,600	
Vandenberg Air Force Base	Total Number of Efforts	N/A	N/A	3	\$33,000 to \$54,600
	Total Cost of Efforts	N/A	N/A	\$33,000 to \$54,600	
Agriculture	Total Number of Efforts	60	N/A	2 ^b	\$75,400 to \$169,800
	Total Cost of Efforts	\$51,600 to \$130,800	N/A	\$23,800 to \$39,000	
Parks, Recreation, and Wildlife Refuge	Total Number of Efforts	N/A	N/A	8	\$90,500 to \$149,300
	Total Cost of Efforts	N/A	N/A	\$90,500 to \$149,300	
Total Number and Costs of Technical Assistance Efforts, Informal Consultations, and Formal Consultations		68	10	44	\$671,700 to \$1,221,400
		\$58,500 to \$148,200	\$35,000 to \$139,000	\$578,200 to \$934,200	
<p>^a This analysis assumes that all of the consultations will involve costs to the Service, an Action agency, and a third party, with the exception of three internal formal consultations on Refuge activities and three formal consultations in Vandenberg. For these consultations, no third party costs are expected, because the Service will consult directly with a Federal agency (the Fish and Wildlife Service's National Wildlife Refuge division and the U.S. Air Force, respectively). This analysis also assumes that the consultation on Refuge activities will not include a biological assessment.</p> <p>^b This analysis assumes that the costs associated with the formal consultation on Partners for Fish and Wildlife funding of agricultural restoration measures are equivalent to those of a formal consultation without a biological assessment.</p> <p>Note: Cost figures have been rounded.</p>					

Exhibit 10					
ESTIMATED SECTION 7 TECHNICAL ASSISTANCE AND CONSULTATION COSTS FOR THE LA GRACIOSA THISTLE, LOMPOC YERBA SANTA, AND GAVIOTA TARPLANT BY CRITICAL HABITAT UNIT (TOTAL OVER TEN YEARS)					
Land Use Activity		Technical Assistance	Informal Consultations^a	Formal Consultations^a	Total Costs
Pismo-Orcutt	Total Number of Efforts	10	N/A	14	\$182,500 to \$304,900
	Total Cost of Efforts	\$8,600 to \$21,800	N/A	\$173,900 to \$283,100	
Canada de las Flores	Total Number of Efforts	18	N/A	2 ^b	\$39,300 to \$78,200
	Total Cost of Efforts	\$15,500 to \$39,200	N/A	\$23,800 to \$39,000	
Solomon Hills	Total Number of Efforts	10	N/A	N/A	\$8,600 to \$21,800
	Total Cost of Efforts	\$8,600 to \$21,800	N/A	N/A	
Vandenberg	Total Number of Efforts	N/A	N/A	0.2 ^c	\$2,200 to \$3,700
	Total Cost of Efforts	N/A	N/A	\$2,200 to \$3,700	
Santa Ynez Mountains	Total Number of Efforts	10	4	N/A	\$22,600 to \$77,400
	Total Cost of Efforts	\$8,600 to \$21,800	\$14,000 to \$55,600	N/A	
Point Sal	Total Number of Efforts	N/A	N/A	0.2 ^c	\$2,200 to \$3,700
	Total Cost of Efforts	N/A	N/A	\$2,200 to \$3,700	
Arguello	Total Number of Efforts	N/A	N/A	1.53 ^c	\$16,800 to \$27,800
	Total Cost of Efforts	N/A	N/A	\$16,800 to \$27,800	
Sudden Peak	Total Number of Efforts	N/A	N/A	0.54 ^c	\$6,000 to \$9,800
	Total Cost of Efforts	N/A	N/A	\$6,000 to \$9,800	
Santa Ynez	Total Number of Efforts	10	2	N/A	\$15,600 to \$49,600
	Total Cost of Efforts	\$8,600 to \$21,800	\$7,000 to \$27,800	N/A	
Conception-Gaviota	Total Number of Efforts	10	4	25.53 ^c	\$375,900 to \$644,500
	Total Cost of Efforts	\$8,600 to \$21,800	\$14,000 to \$55,600	\$353,300 to \$567,100	

Exhibit 10				
ESTIMATED SECTION 7 TECHNICAL ASSISTANCE AND CONSULTATION COSTS FOR THE LA GRACIOSA THISTLE, LOMPOC YERBA SANTA, AND GAVIOTA TARPLANT BY CRITICAL HABITAT UNIT (TOTAL OVER TEN YEARS)				
Land Use Activity	Technical Assistance	Informal Consultations ^a	Formal Consultations ^a	Total Costs
Total Number and Costs of Technical Assistance and Consultations	68	10	44	\$671,700 to \$1,221,400
	\$58,500 to \$148,200	\$35,000 to \$139,000	\$578,200 to \$934,200	
^a This analysis assumes that all of the consultations will involve costs to the Service, an Action agency, and a third party, with the exception of three internal formal consultations on Refuge activities and three formal consultations in Vandenberg. For these consultations, no third party costs are expected because the Service will consult directly with a Federal agency (the Fish and Wildlife Service's National Wildlife Refuge division and the U.S. Air Force, respectively). ^b This analysis assumes that the costs associated with the formal consultation on Partners for Fish and Wildlife funding of agricultural restoration measures are equivalent to those of a formal consultation without a biological assessment. ^c Because one formal consultation at Vandenberg Air Force Base is expected to address grazing at three different critical habitat units, this analysis assumes that approximately one-third of the total consultation costs can be assigned to each of the Arguello, Sudden Peak, and Conception-Gaviota units. It also assumes that the cost of the formal consultation addressing Vandenberg's revised INRMP can be distributed evenly among the Vandenberg, Point Sal, Arguello, Sudden Peak, and Conception-Gaviota units. Note: Cost figures have been rounded.				

2.4 Estimated Costs of Project Modifications

62. This analysis provides estimates of the number and cost of several types of project modifications that are likely to occur as a result of section 7 implementation for the thistle, yerba santa, and tarplant. Under section 7, the Service does not have the authority to put forth terms and conditions of project modifications for protection of plants. However, during the consultation process, landowners and/or Action agencies often propose a typical suite of modifications to avoid jeopardizing plants. The Service may concur with these project modifications and, in some cases, recommend additional changes. Although the Service lacks the authority to require such project modifications, this analysis assumes that landowners and/or Action agencies adopt project modifications in response to section 7, and that costs associated with project modifications are therefore attributable to section 7 implementation.
63. Certain standard modifications are likely to be adopted by landowners, in conjunction with Action agencies, in order to reduce projects' impact on the plants. Typically, landowners develop project plans that minimize impacts to the plants and their PCEs. Such plans commonly include a plan to minimize ground disturbance during brush removal in response to local fire codes, an arrangement for natural revegetation (including the replanting of native plants), and a plan for the removal of invasive, non-native plants. The

per-effort cost of such a plan is estimated to be approximately \$25,000.³² Landowners may also propose more extensive project modifications on a project-by-project basis.

64. This section describes by land use activity the project modifications anticipated by the Service (Ventura Fish and Wildlife Office), relevant Action agencies, and landowners for consultations described in Section 2.2, above. Exhibit 11 summarizes the per-effort and total project modification costs by land use activity, and Exhibit 12 summarizes the project modification costs by critical habitat unit.

2.4.1 Oil and Gas

65. Companies involved in both active and decommissioning/remediating oil and gas sites will likely propose measures to modify their project's impacts on the species. The project modifications for decommissioning and remediation projects at Guadalupe Oil Field, Hollister Ranch (Texaco), and Cojo/Government Point (Unocal) are expected to include project redesign at a cost of approximately \$25,000. In addition, since oil and gas activities typically involve excavation, landowners are likely to propose stockpiling surface soil to maintain the seedbank, and replacing the soil when the project is complete, at a cost of approximately \$3,200 per effort.³³ The total cost of these project modifications resulting from the nine formal consultations associated with clean-up projects is anticipated to be approximately \$254,000 and may be distributed between the Pismo-Orcutt and Conception-Gaviota proposed critical habitat units.

66. It is likely that each of the active oil companies, which are all located within the Conception-Gaviota unit, will redesign their project plans for each of the 20 projects that are expected to lead to formal consultation (\$25,000 per effort). In addition, these companies may also stockpile surface soil to maintain the seedbank, at a cost of approximately \$3,200 per effort. The total cost of project modifications for active oil companies over ten-year period is likely to be approximately \$564,000.

2.4.2 Private Development

67. All 12 of the consultations associated with residential development of Mahoney Ranch and construction of the Union Valley Parkway in the Pismo-Orcutt unit, and residential development of Hollister Ranch in the Santa Ynez, Santa Ynez Mountains, and Conception-Gaviota units, will likely lead to project

³² The estimates of project modifications are based on the assumption that a botanist would be paid at a rate of \$80/hour and estimates of how long each activity will last, based on personal communication with ACOE and the Service. Personal communication with Army Corps of Engineers, Ventura Office, February 6, 2002; personal communication with Biologist, Ventura Fish and Wildlife Office, March 18, 2002.

³³ Personal communication with Army Corps of Engineers, Ventura Office, February 6, 2002; personal communication with Biologist, Ventura Fish and Wildlife Office, March 18, 2002.

redesign at a per-effort cost of \$25,000.³⁴ Developers and builders are also likely to propose fencing off sensitive areas to minimize the project "footprint" and avoid harming the plants. If a typical project includes two miles of fencing, the cost of the modification will be approximately \$20,000.³⁵ In addition, this analysis assumes that all 12 consultations will involve long-term monitoring of plants, at a per-effort cost of \$30,000.³⁶ The total cost of project modifications for residential construction and road-building activities in the next ten years is likely to be approximately \$900,000.

68. In addition to these project modifications, additional modifications may be recommended by the California Department of Fish and Game and/or the California Coastal Commission in response to information provided under CEQA, the California Coastal Act, and the California Endangered Species Act, such as purchasing mitigation land for the Mahoney Ranch project.³⁷ Mitigation land typically costs between \$10,000 and \$70,000 per acre in Santa Barbara County, and private developers are usually required to mitigate three times as much land as they impact.³⁸ The critical habitat designation could increase these agencies' awareness of these sensitive areas, and therefore secondarily contribute to the cost of purchasing mitigation lands. However, similar past residential development projects in Santa Barbara County have faced mitigation costs due to CEQA, the Coastal Act, and the California Endangered Species Act, regardless of critical habitat for federally endangered species. Therefore, this analysis attributes the costs associated with purchase of mitigation lands to these baseline State regulations.

2.4.3 Vandenberg Air Force Base

69. In order to accommodate the needs of the tarplant, the Lompoc Federal Penitentiary, which leases land from Vandenberg, will likely only graze the proposed units before and after the months during which the tarplant blooms (June through September), stopping one month in advance of the ordinary grazing routine.³⁹ The penitentiary already operates a grazing system of rest and rotation. As a result, the

³⁴ Personal communication with Biologist, Ventura Fish and Wildlife Office, March 18, 2002.

³⁵ Cost estimate based on material and labor costs obtained from personal communication with Vandenberg Air Force Base, January 25, 2002.

³⁶ This estimate assumes that the consultations are initiated in 2002 and monitoring will take place every subsequent year for ten years at a cost of \$3,000 per year.

³⁷ The Service has also begun to recommend, on occasion, that applicants provide for long-term storage of seeds in a seed bank to preserve genetic diversity and guard against catastrophic loss. Because this is a relatively new conservation recommendation, this analysis does not assume that maintenance of the seed bank will be a standard project modification.

³⁸ Personal communication with Army Corps of Engineers, Ventura Office, February 6, 2002.

³⁹ Personal communication with Biologist, Ventura Fish and Wildlife Office, February 1, 2002.

penitentiary will lose profits on the amount of meat they could have sold if the calves were able to gain weight for an additional month. Assuming that the calves gain two and a half pounds (lbs) per day and there are 30 days in a month, this would be 75 lbs per calf per month. At a price of \$.90 per lb, this would be a loss of \$68 per calf. This per calf amount probably overstates losses, because the costs of caring for the calves for an additional month are not netted out of the sale price. Approximately 390 calves would graze these lands, which would result in a total loss of \$26,520. Over a ten-year period, this will be a \$265,200 loss for the penitentiary. Based on the amount of grazing land in each unit, approximately \$185,700 (70 percent) of this loss is associated with the Sudden Peak unit, \$26,500 (10 percent) is associated with the Arguello unit, and \$53,000 (20 percent) is associated with the Conception-Gaviota unit.⁴⁰

70. For the SLC-6 launch site, located within the Arguello unit, the project modifications are likely to be similar to those proposed by the Service when another federally-listed plant species, the beach Layia, was identified near a launch site. A section 7 consultation was initiated in December 1999 that included the beach Layia, the snowy plover, and the Southwestern willow flycatcher.⁴¹ In that case, the Service suggested a program of monitoring both the level of acid deposition around the site and the state of the plants before and after each launch. Vandenberg anticipates that this type of monitoring program will cost approximately \$10,000 per launch and that there will be approximately 32 launches in the next ten years, for a total cost of \$320,000.⁴²

2.4.4 Agriculture

71. This analysis assumes that the NRCS formal consultation associated with vineyard conversion in the Canada de las Flores unit will involve project redesign at a per-effort cost of \$25,000.⁴³ The internal formal consultation associated with Partners for Fish and Wildlife funding is unlikely to lead to project modifications, since it may involve voluntary restoration measures that are intended to promote ecologically sound conservation practices at the vineyard.

⁴⁰ Numbers may not add to total due to rounding. Personal communication with Department of Natural Resources and Ecology, Vandenberg Air Force Base, January 30 and February 6, 2002.

⁴¹ Personal communication with Botanist, Vandenberg Air Force Base, March 18, 2002.

⁴² This number assumes that, once launches begin in 2003, there will be three launches per year in four of the years and four launches per year in five of the years in a ten-year period. Personal communication with Biologist, Vandenberg Air Force Base, January 24, 2002.

⁴³ Personal communication with Natural Resource Conservation Service, Santa Barbara County, February 5, 2002.

2.4.5 Parks, Recreation, and Wildlife Refuge

72. Within the Pismo-Orcutt unit, the Oceano Dunes State Preserve will likely design its project plans to accommodate the plants (\$25,000 per effort) before a formal consultation occurs. Rancho Guadalupe Dunes Preserve, located in the Pismo-Orcutt unit, and Jalama Beach County Park, located in the Conception-Gaviota unit, will probably plan their projects to accommodate the plants (\$25,000 per effort), at a cost of approximately \$100,000 for the four formal consultations expected for these three parks.
73. Within the Conception-Gaviota unit, Gaviota State Park expects that the California Department of Fish and Game will require the purchase of a significant amount of mitigation land in order to off-set impacts from the development of a coastal bicycle trail, and the park expects that this mitigation measure will be sufficient as a project modification for the Service. Therefore, this analysis does not predict any project modifications associated with the section 7 consultation. For Gaviota State Park, section 7 costs beyond the administrative costs of a formal consultation are unlikely.⁴⁴ For the three formal internal consultations regarding the Guadalupe-Nipomo Dunes National Wildlife Refuge, project modifications are not anticipated, because the Refuge's current active habitat management makes it unlikely that the Service would prescribe a conservation measure that the Refuge does not already meet.⁴⁵
74. Exhibit 11 summarizes the costs of project modifications for the thistle, yerba santa, and tarplant according to type of modification and land use activity. The table includes common project modifications and their costs, as well as the type of land use activity with which they are likely to be associated, and the total cost to each of these land use activities.

⁴⁴ Personal communication with California State Parks, Gaviota, January 31, 2002.

⁴⁵ Personal communication with Biologist, Guadalupe-Nipomo Dunes National Wildlife Refuge, January 18, 2002.

Exhibit 11				
ESTIMATED SECTION 7 PROJECT MODIFICATION COSTS FOR THE LA GRACIOSA THISTLE, LOMPOC YERBA SANTA, AND GAVIOTA TARPLANT BY LAND USE ACTIVITY (TOTAL OVER TEN YEARS)				
Types of Project Modifications	Per-Effort Cost of Project Modification	Land Use Activity Affected	Number of Consultations Recommending Modification	Total Costs of Project Modifications
Redesign Project Plans (including fuel management, natural revegetation, and invasive plant management)	\$25,000	Oil and gas	29	\$725,000
		Private development	12	\$300,000
		Agriculture	1	\$25,000
		Parks, Recreation, and Wildlife Refuge	4	\$100,000
Stockpile Soil	\$3,200	Oil and gas	29	\$92,800
Monitor Plants	\$30,000	Private development	12	\$360,000
Install Fencing	\$20,000	Private development	12	\$240,000
Reduce Grazing at Lompoc Penitentiary	N/A	Vandenberg	1	\$265,200
Monitor Plants at Space Launch Site	\$10,000 per launch	Vandenberg	1 (32 launches)	\$320,000
Total Costs of Project Modifications				\$2,428,000

75. Exhibit 12 summarizes the project modifications for the thistle, yerba santa, and tarplant according to the unit and type of modification. The table estimates the number of these project modifications that may be recommended in each unit, and the total cost of implementing such modifications, according to the unit.

Exhibit 12			
ESTIMATED SECTION 7 PROJECT MODIFICATION COSTS FOR THE LA GRACIOSA THISTLE, LOMPOC YERBA SANTA, AND GAVIOTA TARPLANT BY CRITICAL HABITAT UNIT (TOTAL OVER TEN YEARS)			
Unit Affected	Number of Consultations Recommending Modification	Types of Project Modifications	Total Costs of Project Modifications
Pismo-Orcutt	11	Redesign Project Plans	\$275,000
	6	Stockpile Soil	\$19,200
	2	Monitor Plants	\$60,000
	2	Install Fencing	\$40,000
Canada de las Flores	1	Redesign Project Plans	\$25,000
Santa Ynez Mountains	4	Redesign Project Plans	\$100,000
	4	Monitor Plants	\$120,000
	4	Install Fencing	\$80,000
Arguello	0.1 ^a	Reduce Grazing at Lompoc Penitentiary	\$26,500
	1 (32 launches)	Monitor Plants at Space Launch Site	\$320,000
Sudden Peak	0.7 ^a	Reduce Grazing at Lompoc Penitentiary	\$185,700
Santa Ynez	2	Redesign Project Plans	\$50,000
	2	Monitor Plants	\$60,000
	2	Install Fencing	\$40,000
Conception-Gaviota	28	Redesign Project Plans	\$700,000
	23	Stockpile soil	\$73,600
	4	Monitor Plants	\$120,000
	4	Install Fencing	\$80,000
	0.2 ^a	Reduce Grazing at Lompoc Penitentiary	\$53,000
Total Costs of Project Modifications			\$2,428,000
^a The project modification costs associated with reducing grazing at the Penitentiary are distributed across three units, with 70 percent in Sudden Peak, 20 percent in Conception-Gaviota, and 10 percent in Arguello.			

2.5 Total Section 7 Costs

76. The cost estimates presented in Exhibit 13 are a function of the assumed number of technical assistance, consultations, and project modifications associated with activities affecting the proposed critical

habitat for the plants, along with the per effort costs outlined in Sections 2.3 and 2.4. Based on this analysis, the total section 7 costs associated with the proposed critical habitat designation for the plants may range from \$3,099,700 to \$3,649,400.

77. While the total economic costs associated with the designation of critical habitat and the associated listing impacts appear to be high, they must be considered in the context of the value of the economic activity in this region. In Santa Barbara County, California, farm income was \$369.2 million, agricultural services income was \$176.5 million, construction income was \$467.1 million, and income from oil and gas extraction was \$72.3 million in 1999.⁴⁶ Given a total value of \$1.09 billion in income from farm, agricultural services, construction, and oil and gas extraction activities in Santa Barbara County, the annualized total cost of section 7 implementation represents approximately 0.03 percent of the total value of affected economic activities.

Exhibit 13		
ESTIMATED SECTION 7 COSTS ASSOCIATED WITH THE LISTING AND DESIGNATION OF CRITICAL HABITAT FOR THE LA GRACIOSA THISTLE, LOMPOC YERBA SANTA, AND GAVIOTA TARPLANT (TEN YEAR TOTAL)		
Species	Unit	Estimated Section 7 Costs
La Graciosa Thistle	Pismo-Orcutt	\$576,700 to \$699,100
	Canada de las Flores	\$64,300 to \$103,200
Lompoc Yerba Santa	Solomon Hills	\$8,600 to \$21,800
	Vandenberg	\$2,200 to \$3,700
	Santa Ynez Mountains	\$322,600 to \$377,400
Gaviota Tarplant	Point Sal	\$2,200 to \$3,700
	Arguello	\$363,300 to \$374,300
	Sudden Peak	\$191,700 to \$195,500
	Santa Ynez	\$165,600 to \$199,600
	Conception-Gaviota	\$1,402,500 to \$1,671,100
Total Costs		\$3,099,700 to \$3,649,400

⁴⁶ U.S. Bureau of Economic Analysis, "Regional Accounts Data: Local Area Personal Income," <http://www.bea.doc.gov/bea/regional/reis/>, as viewed on February 14, 2002.

2.6 Economic Impacts Associated Solely with the Designation of Critical Habitat

78. The cost estimates presented in Exhibit 14 are an indication of the total section 7 costs that may be associated with the designation of critical habitat over the next ten years, including protections pursuant to the listing of the species under the Act. However, a subset of impacts can be attributed exclusively to the critical habitat designation. This analysis assigns these impacts as follows:

- *Impacts attributable to the jeopardy provisions of section 7.* In general, for activities for which the Service has an extensive record of past consultation on the plants or other endangered species, impacts are attributable to implementation of the jeopardy provisions of section 7. This record of past consultation is likely to exist for activities that: 1) overlap with numerous other endangered species, including endangered animals; and/or 2) occur in areas that are already managed primarily for conservation.⁴⁷ For example, for oil and gas remediation and decommissioning activities, residential development at Mahoney Ranch, construction of the Union Valley Parkway, and vineyard conversion, endangered species such as the red-legged frog and tiger salamander are known to be present at the sites and landowners are familiar with the consultation process. Therefore, section 7 consultations on the thistle, yerba santa, and tarplant are expected regardless of critical habitat designation. For the consultations associated with activities on national and State park lands, section 7 impacts are also expected to occur regardless of critical habitat, because the parks are conservation-oriented and were aware of the species' presence prior to critical habitat designation.⁴⁸
- *Impacts attributable to the critical habitat provision of section 7.* For certain activities, the designation of critical habitat for the thistle, yerba santa, and tarplant is expected to increase the likelihood of section 7 impacts. For example, in areas that do not contain other endangered species and are not currently occupied by the plants, but that contain the PCEs, critical habitat designation may increase awareness of the plants, leading to additional surveys and, potentially, consultations.⁴⁹ Additional consultations and technical assistance related to active oil projects, NRCS projects, residential construction

⁴⁷ Personal communication with U.S. Fish and Wildlife Service, Ventura Office, February 14, 2002.

⁴⁸ Personal communication with Guadalupe-Nipomo Dunes National Wildlife Refuge, January 18, 2000; personal communication with California Department of Parks and Recreation, January 28, 2002; personal communication with Santa Barbara County Parks, January 28, 2002; personal communication with California State Parks, Gaviota, January 31, 2002.

⁴⁹ Personal communication with U.S. Fish and Wildlife Service, Ventura Office, February 14, 2002.

at Hollister Ranch, and activities at Vandenberg are attributable to the critical habitat provision of section 7. These activities would have been unlikely to result in section 7 impacts but for their location within critical habitat for the plants.

79. Exhibit 14 presents the number and type of technical assistance, consultations, and project modifications that are attributable to the critical habitat provision of section 7. It also summarizes total costs due to critical habitat, based on the per effort costs described in sections 2.3 and 2.4. Based on this analysis, the total section 7 costs attributable exclusively to the critical habitat provision of section 7 may range from \$2,296,800 to \$2,669,700.

Exhibit 14				
ESTIMATED SECTION 7 COSTS ATTRIBUTABLE TO CRITICAL HABITAT BY UNIT (TEN YEAR TOTAL)				
Unit	Activity	Number of Consultations and Technical Assistance	Number, Type, and Total Cost of Project Modifications	Total Cost Due to Critical Habitat^a
Pismo-Orcutt	NRCS projects	10 technical assistance	N/A	\$8,600 to \$21,800
Canada de las Flores	NRCS projects	10 technical assistance	N/A	\$8,600 to \$21,800
Solomon Hills	NRCS projects	10 technical assistance	N/A	\$8,600 to \$21,800
Vandenberg	Vandenberg INRMP	0.2 formal consultation ^b	N/A	\$2,200 to \$3,700
Santa Ynez Mountains	NRCS projects	10 technical assistance	N/A	\$322,600 to \$377,400
	Residential development	4 informal consultations	Redesign project plans, monitor plants, and install fencing @ \$300,000	
Point Sal	Vandenberg INRMP	0.2 formal consultation ^b	N/A	\$2,200 to \$3,700
Arguello	Vandenberg INRMP	0.2 formal consultation ^b	N/A	\$363,300 to \$374,300
	Vandenberg launch site	1 formal consultation ^b	Monitor plants @ \$320,000	
	Vandenberg grazing	0.33 formal consultation ^b	Reduce grazing @ \$26,500	
Sudden Peak	Vandenberg INRMP	0.2 formal consultation ^b	N/A	\$191,700 to \$195,500
	Vandenberg grazing	0.34 formal consultation ^b	Reduce grazing @ \$185,700	
Santa Ynez	NRCS projects	10 technical assistance	N/A	\$165,600 to \$199,600
	Residential development	2 informal consultations	Redesign project plans, monitor plants, and install fencing @ \$150,000	
Conception-Gaviota	NRCS projects	10 technical assistance	N/A	\$1,223,400 to \$1,450,100
	Residential development	4 informal consultations	Redesign project plans, monitor plants, and install fencing @ \$300,000	
	Vandenberg INRMP	0.2 formal consultation ^b	N/A	
	Vandenberg grazing	0.33 formal consultation ^b	Reduce grazing @ \$53,000	
	Oil and gas pipeline	20 formal consultations	Redesign project plans and stockpile soil @ \$564,000	
Total Section 7 Costs Attributable to Critical Habitat				\$2,296,800 to \$2,669,700
^a The total cost column reflects both the consultation costs and project modification costs of each unit.				
^b This analysis assumes that three consultations on activities in Vandenberg units will not lead to third party costs because the Service will consult directly with a Federal agency (the U.S. Air Force).				

2.7 Summary

80. Exhibit 15 provides a summary of the technical assistance, consultation, and project modification costs associated with critical habitat for the thistle, yerba santa, and tarplant over a ten-year period.

Exhibit 15			
ESTIMATED SECTION 7 COSTS ASSOCIATED WITH THE LISTING AND DESIGNATION OF CRITICAL HABITAT FOR THE LA GRACIOSA THISTLE, LOMPOC YERBA SANTA, AND GAVIOTA TARPLANT (TEN YEAR TOTAL)			
Species	Unit	Estimated Section 7 Costs	Estimated Section 7 Costs Attributable to Critical Habitat
La Graciosa Thistle	Pismo-Orcutt	\$576,700 to \$699,100	\$8,600 to \$21,800
	Canada de las Flores	\$64,300 to \$103,200	\$8,600 to \$21,800
Lompoc Yerba Santa	Solomon Hills	\$8,600 to \$21,800	\$8,600 to \$21,800
	Vandenberg	\$2,200 to \$3,700	\$2,200 to \$3,700
	Santa Ynez Mountains	\$322,600 to \$377,400	\$322,600 to \$377,400
Gaviota Tarplant	Point Sal	\$2,200 to \$3,700	\$2,200 to \$3,700
	Arguello	\$363,300 to \$374,300	\$363,300 to \$374,300
	Sudden Peak	\$191,700 to \$195,500	\$191,700 to \$195,500
	Santa Ynez	\$165,600 to \$199,600	\$165,600 to \$199,600
	Conception-Gaviota	\$1,402,500 to \$1,671,100	\$1,223,400 to \$1,450,100
Total Costs		\$3,099,700 to \$3,649,400	\$2,296,800 to \$2,669,700

2.8 Potential Impacts on Small Businesses

81. Under the Regulatory Flexibility Act (as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever a Federal agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions).⁵⁰ However, no regulatory flexibility analysis is required if the head of an agency certifies that the rule will not have a significant economic impact on a substantial number of small

⁵⁰ Regulatory Flexibility Act, 5 U.S.C. 601 et. seq.

entities.⁵¹ SBREFA amended the Regulatory Flexibility Act to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have a significant economic impact on a substantial number of small entities. Accordingly, the following represents a screening level analysis of the potential effects of critical habitat designation on small entities to assist the Secretary in making this certification.

82. This analysis determines whether this critical habitat designation potentially affects a "substantial number" of small entities in counties supporting critical habitat areas. It also quantifies the probable number of small businesses that experience a "significant effect." While SBREFA does not explicitly define either "substantial number" or "significant effect," the Small Business Administration (SBA) and other Federal agencies have interpreted these terms to represent an impact on 20 percent or more of the small entities in any industry and an effect equal to three percent or more of a business' annual sales.⁵²

2.8.1 Estimated Number of Small Businesses Affected: The "Substantial Number" Test

83. Based on the past consultation history for the thistle, yerba santa, and tarplant, private development, oil and gas production, and agriculture (specifically, vineyards) are the primary activities anticipated to be affected by the designation of critical habitat that could affect small businesses. To be conservative, (i.e., more likely to overstate impacts than understate them), this analysis assumes that a unique company will undertake each of the projected consultations in a given year, and so the number of businesses affected is equal to the total annual number of consultations (both formal and informal).⁵³ This analysis also limits the universe of potentially affected entities to include only those within the counties in which critical habitat units lie; this interpretation produces far more conservative results than including all entities nationwide.

84. First, the *number* of small businesses affected is estimated. As shown in Exhibit 16, the following calculations yield this estimate:⁵⁴

⁵¹ Thus, for a regulatory flexibility analysis to be required, impacts must exceed a threshold for "significant impact" **and** a threshold for a "substantial number of small entities." See 5 U.S.C. 605 (b).

⁵² See U.S. Small Business Administration, *The Regulatory Flexibility Act: An Implementation Guide for Federal Agencies*, 1998. Accessed at: www.sba.gov/advo/laws/rfaguide.pdf on December 3, 2001.

⁵³ While it is possible that the same business could consult with the Service more than once, it is unlikely to do so during the one-year time frame addressed in this analysis. However, should such multiple consultations occur, they would concentrate effects of the designation on fewer entities. In such a case, the approach outlined here likely would overstate the number of affected businesses.

⁵⁴ Note that because these values represent the probability that small businesses will be affected during a one-year time period, calculations may result in fractions of businesses. This is an acceptable result, as these values represent the probability that small businesses will be affected.

- Estimate the number of businesses within the study area affected by section 7 implementation annually (assumed to be equal to the number of annual consultations);
- Calculate the *percent* of businesses in the affected industry that are likely to be small;
- Calculate the *number* of affected small businesses in the affected industry;
- Calculate the *percent* of small businesses likely to be affected by critical habitat.

Exhibit 16				
ESTIMATED ANNUAL NUMBER OF SMALL BUSINESSES AFFECTED BY CRITICAL HABITAT DESIGNATION: THE "SUBSTANTIAL" TEST				
Industry Name		Development/ Real Estate SIC 6552	Oil and Gas Production SIC 13	Agriculture (Vineyards) SIC 0172
Annual number of affected businesses in industry (Equal to number of annual formal and informal consultations)	By formal consultation	0.1	3.0	0.2
	By informal consultation	1.0	0	0
Total number of <i>all</i> businesses in industry within study area		126	78	129
Number of <i>small</i> businesses in industry within study area		114	73	93
Percent of businesses that are small (Number of small businesses)/(Total Number of businesses)		90%	94%	72%
Annual number of small businesses affected (Number affected businesses)*(Percent of small businesses)		1.0	2.8	0.1
Annual percentage of small businesses affected (Number of small businesses affected)/(Total number of small businesses); >20 percent is substantial		0.87%	3.85%	0.16%

85. This calculation reflects conservative assumptions and nonetheless yields an estimate that is still far less than the 20 percent threshold that would be considered “substantial.” As a result, this analysis concludes that a significant economic impact on a substantial number of small entities will not result from the designation of critical habitat for the thistle, yerba santa, and tarplant. Nevertheless, an estimate of the number of small businesses that will experience effects at a significant level is provided below.

2.8.2 Estimated Effects on Small Businesses: The “Significant Effect” Test

86. Costs of critical habitat designation to small businesses consist primarily of the cost of participating in section 7 consultations and the cost of project modifications. To calculate the likelihood that a small business will experience a significant effect from critical habitat designation for the thistle, yerba santa, and tarplant, the following calculations were made:

- Calculate the per-business cost. This consists of the unit cost to a third party of participating in a section 7 consultation (formal or informal) and the unit cost of associated project modifications. *To be conservative, this analysis uses the high-end estimate for each cost.*
- Determine the amount of annual sales that a company would need to have for this per-business cost to constitute a “significant effect.” This is calculated by dividing the per-business cost by the three percent “significance” threshold value.
- Estimate the likelihood that small businesses in the study area will have annual sales equal to or less than the threshold amount calculated above. This is estimated using national statistics on the distribution of sales within industries.⁵⁵
- Based on the probability that a single business may experience significant effects, calculate the expected value of the number of businesses likely to experience a significant effect;
- Calculate the percent of businesses in the study area within the affected industry that are likely to be affected significantly.

87. Calculations for costs associated with designating critical habitat for the thistle, yerba santa, and tarplant are provided in Exhibit 17 below.

⁵⁵ This probability is calculated based on national industry statistics obtained from the Robert Morris Associated *Annual Statement of Studies: 2001-2002* and from comparison with the SBA definitions of small businesses.

Exhibit 17					
ESTIMATED ANNUAL EFFECTS ON SMALL BUSINESSES: THE "SIGNIFICANT EFFECT" TEST					
Industry	Development/ Real Estate SIC 6552		Oil and Gas Production SIC 13	Agriculture (Vineyards) SIC 0172	
	<i>Formal With Project Modifications</i>	<i>Informal With Project Modifications</i>	<i>Formal With Project Modifications</i>	<i>Formal With Project Modifications</i>	<i>Formal Without Project Modifications</i>
Annual Number of Small Businesses Affected (from Exhibit 16)	0.10	0.9	2.8	0.10	0.10
Per-Business Cost (formal and informal)	\$84,700	\$81,900	\$37,900	\$34,700	\$9,700
Level of Annual Sales Below which Effects Would Be Significant	\$2,823,333	\$2,730,000	\$1,263,333	\$1,156,667	\$323,333
Probability that Per- Business Cost is Greater Than 3% of Sales for Small Business ^a	77%	75%	34%	100%	93%
Probable Annual Number of Small Businesses Experiencing Significant Effects (Number Small Businesses)* (Probability of Significant Effect)	0.1	0.7	0.9	0.1	0.1
Annual Percentage of Small Businesses Bearing Significant Costs in Industry	0.66%		1.30%	0.15%	
<p>^a This probability is calculated based on national industry statistics obtained from the Robert Morris Associated Annual Statement of Studies: 2001-2002, which provides data on the distribution of annual sales in an industry within the following ranges: \$0-1 million, \$1-3 million, \$3-5 million, \$5-10, \$10-25 million, and \$25+ million. This analysis uses the ranges that fall within the SBA definition of small businesses (i.e., for industries in which small businesses have sales of less than \$5.0 million, it uses \$0-1 million, \$1-3 million, and \$3-5 million) to estimate a distribution of sales for small businesses. It then calculates the probability that small businesses have sales below the threshold value as follows. All small businesses (expressed as a percentage of all small businesses) in ranges whose upper limits fall below the threshold value experience the costs as significant. For the range in which the threshold value falls, the percentage of companies in the bin that fall below the threshold value is calculated as [(threshold value - range minimum)/(bin maximum - range minimum)] x percent of small businesses captured in range. This percentage is added to the percentage of small businesses captured in each of the lower ranges to reach the total probability that small businesses have sales below the threshold value. Note that in instances in which the threshold value exceeds the definition of small businesses (i.e., the threshold value is \$12.1 million and the definition of small businesses is sales less than \$5.0 million), all small businesses experience the effects as significant.</p>					

88. Because the costs associated with designating critical habitat for the thistle, yerba santa, and tarplant are likely to be significant for approximately 2.2 small businesses per year (less than one percent of the small businesses in the residential development industry, less than two percent of businesses in the oil and gas production industry, and less than one percent of vineyards) in the affected counties, this analysis concludes that a significant economic impact on a substantial number of small entities will not result from the designation of critical habitat for the thistle, yerba santa, and tarplant. This would be true even if all of the effects of section 7 consultation on these activities were attributed solely to the critical habitat designation.

3.0 POTENTIAL BENEFITS OF PROPOSED CRITICAL HABITAT

89. To determine the benefits of critical habitat designation for the thistle, yerba santa, and tarplant, this report considers those categories of benefit that will be enhanced as a result of the listing of the species and the proposed critical habitat designation.

90. The primary goal of listing a species under the Act is to preserve the listed species and the ecosystems upon which they depend. However, various economic benefits, measured in terms of regional economic performance and enhanced national social welfare, result from species preservation as well. Regional economic benefits can be expressed in terms of jobs created, regional sector revenues, and overall economic activity, while national social welfare values can reflect both use and non-use (i.e., existence) values. For example, use values might include the recreational use of habitat area preserved as a result of the plants. Existence values are not derived from direct use of the species, but instead reflect the satisfaction and utility people derive from the knowledge that a species exists.

91. The following examples represent potential benefits derived from the listing of the thistle, yerba santa, and tarplant and, potentially, critical habitat:

- **Ecosystem health.** Absent the plants, other natural organisms may suffer. Actions to protect the thistle, yerba santa, and tarplant may also benefit other organisms found in coastal plant communities. Each one of these organisms may provide some level of direct or indirect benefit to people.
- **Real estate value effects.** Real estate values may be enhanced by critical habitat designation. For example, such enhancement may occur if open space is preserved or if allowable densities of development are reduced or kept at current levels as a result of critical habitat.
- **Flood control.** Preserving natural thistle habitats may also reduce future Federal Emergency Management Agency (FEMA) and county expenditures on bank stabilization and other flood control programs, given that the thistle is associated with marshes and river margins within dune-wetland complexes.

92. The extensive baseline protection provided by the California Coastal Commission, CEQA, and CESA provide for many of these benefits. In addition, the benefits identified above arise from the protection afforded to the thistle, yerba santa, and tarplant under the Federal listing. Critical habitat designation may provide some additional benefits beyond the listing benefits. Critical habitat designation provides some educational benefit by increasing awareness of the extent of thistle, yerba santa, and tarplant habitat. Critical habitat also provides a legal definition of the extent of thistle, yerba santa, and tarplant habitat. This reduces the amount of uncertainty Federal agencies face when determining if a section 7 consultation is necessary for an activity with a Federal nexus.
93. The quantification of total economic benefits attributable to the designation of critical habitat is, at best, difficult. To the extent that future consultations are expected to be associated with the listing of the species, rather than the critical habitat designation, designation of critical habitat does not increase the probability of recovery for the species. In that case, the additional benefits of designating critical habitat for the plants would be limited to the educational benefits, increased support for existing conservation efforts, and reduced uncertainty regarding the extent of the thistle, yerba santa, and tarplant habitat.

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